

**STATEMENT OF CHARLES KEEGAN  
ASSOCIATE ADMINISTRATOR FOR RESEARCH AND ACQUISITIONS  
FEDERAL AVIATION ADMINISTRATION  
BEFORE THE HOUSE COMMITTEE ON  
TRANSPORTATION & INFRASTRUCTURE  
SUBCOMMITTEE ON AVIATION  
ON FAA'S AIR TRAFFIC CONTROL MODERNIZATION PROGRAMS**

**OCTOBER 30, 2003**

Chairman Mica, Congressman DeFazio, Members of the Subcommittee:

It is a pleasure for me to appear before you for the first time today and on behalf of Secretary Mineta and Administrator Blakey to discuss the Federal Aviation Administration's (FAA) air traffic services modernization efforts. Since my first day, a year and a half ago, as Associate Administrator for Research and Acquisitions, I have focused on not only getting the *most effective technology* for modernization but also on the *best means* of acquiring those capabilities.

I know that this Committee has a strong interest in the progress of FAA's air traffic services modernization. So today, I will update you on the status of our overall modernization efforts as well as provide updates on some of our most high profile projects.

Modernization is a continuous, evolutionary process that builds on past efforts and keeps an eye on what new innovations may be incorporated in the future. If we thought that modernization had a specific end "date", we would not be making the constant, incremental improvements to the National Airspace System (NAS) that we have already made and hope to make in the future. We will still set and make near-term milestones, goals, and successes along the way, but we view this effort in a strategic way as well—to make long-term positive changes towards a better NAS.

We control the most complex airspace in the world with the most advanced air traffic control tools. While FAA has had many challenges in the past -- and has made mistakes -- I am here to tell you that of the programs that we track for FAA pursuant to the Government Performance and Results Act, the vast majority met the milestones we set for fiscal year 2003 and we continue to make advances.

We have taken lessons learned and applied them to new and existing projects to navigate new or unexpected stumbling blocks as we work towards a system that will provide the infrastructure needed to handle the anticipated growth of air traffic. Ultimately, these modernization efforts will result in an air transportation system that is safer, simpler and smarter – the three principles that Secretary Mineta holds out for all modes of transportation as the benchmarks for success. Today, I will highlight just a few of our efforts to this end.

#### En Route Automation Modernization (ERAM)

ERAM has been identified as “high risk” Department of Transportation’s Inspector General in June 2003 not only because of the significant cost, but also because other modernization efforts hinge on its success. This program will replace the decades old en route control automation system, providing new capabilities such as more flexible flight routing, better information on aircraft positions, and primary and back-up systems with the same capabilities. What you will see as a result of ERAM is an overall software foundation that will be able to more easily integrate new capabilities into the air traffic control system.

We have implemented important safeguards to ensure ERAM’s success. First, and foremost, our contract for ERAM is a phased contract, which means that we will receive something tangible from the contractor each and every year of the contract. Also, we have our most experienced managers overseeing this effort. ERAM is one of FAA’s highest priorities and for this reason a significant portion of our Facilities and Equipment budget goes to support it. I personally check

on this project every day and I will tell you, we are getting results. In fact, the En Route Communications Gateway, a new means for providing data to the Air Route Traffic Control Centers that sets the stage for ERAM, was ready for deployment three months ahead of schedule.

#### Advanced Technologies and Oceanic Procedures (ATOP)

ATOP, another project that is currently on track to meet FAA's cost and schedule goals, will not only increase the capacity of oceanic airspace, but also provide a single operating system for the air traffic control centers controlling those trans-oceanic flights - Oakland, New York, and Anchorage. The International Civil Aviation Organization (ICAO) allocated 80 percent of the world's controlled oceanic airspace to the FAA – approximately 3 million square miles in the Atlantic Ocean, 18 million square miles in the Pacific Ocean as well as airspace over the Arctic Ocean – and we must manage it in the best interests of the international aviation community.

Managing the airspace over the ocean presents challenges because there is no radar coverage. Air traffic controllers must rely on position reports that are transmitted by radio from aircraft, an imprecise system. To compensate for the potential imprecision in estimating an aircraft's position, spacing between aircraft is much greater than it would need to be if more accurate information about an aircraft's location was available. These compensatory measures reduce the capacity of the oceanic airspace, increase flight time, and reduce fuel efficiency. ATOP however, will provide us with a more precise location for aircraft on trans-oceanic flights, allowing for reduced aircraft separation from as much as 100 miles to 30 miles. This program will also reduce controllers' workloads by automating the manual process used today and integrating a number of data sources. Consequently, we will see significant capacity gains for oceanic airspace as well as a reduction in workload for controllers working this airspace.

ATOP will be on time and within budget because of good management decisions made from the outset of this initiative. First, we tested this product in advance of the contract – we knew

exactly what we were getting. Second, we have had continuity in our ATOP team. We have involved all of those who will contribute to the ATOP program from the initial stages of the procurement and they will see ATOP through completion. Finally, FAA's Acquisition Program Baseline (APB) schedule established realistic goals for ATOP deployment. The ATOP program is locked into a fixed price contract, FAA will not bear the cost of the contractor's missed deadline and the contract will remain within budget and is expected to remain on time.

#### Wide Area Augmentation System (WAAS)

WAAS is the foundation for FAA's transition from a primarily ground-based navigation system to a primarily satellite-based navigation system and as stated in the *Federal Aviation Administration Flight Plan*, we expect it to play an up front role in reducing aviation accidents. As agency officials have testified in the past, no one ever doubted that the technology could be developed. Indeed, the WAAS signal has been available for aviation and other users since 2000. But when it came to safety of life applications, we set a very high standard -- that pilots would know with near certainty that the data in the cockpit was correct. It was the technical difficulties involved in this pursuit of near-perfect integrity that led to WAAS' cost and schedule growth.

WAAS improves the accuracy, availability, and continuity, of standard GPS signals and ensures the integrity of the data provided so that aviation navigation can safely move away from ground-based navigation aids as the primary means of ensuring safe flight in the NAS. Aircraft that equip with WAAS receivers will no longer have to rely on signals from ground-based navigation aids along their route. Rather, they will receive navigation information from above, allowing these aircraft to fly direct routes, free from the limitations of ground-based navigation aids, as well as reducing the risk of blocked transmission due to terrain in mountainous areas. Another significant benefit is the ability to use approaches with vertical guidance where they have been designed at airports that do not have ground-based Instrument Landing System (ILS) equipment.

FAA commissioned WAAS this past July. Today, in its initial operating capability, WAAS can guide aircraft through all phases of flight - from takeoff, en route, through an approach with vertical guidance as low as 250 feet above touchdown. Coverage currently extends to most of the continental United States and some parts of Alaska but WAAS will continue to be incrementally improved to provide coverage over all of the continental United States and most of Alaska.

Although our initial goal was to enable WAAS capability for a precision approach down to 200 feet above the runway, users told us that the practical effects of those additional 50 feet would not significantly change the benefits they would receive from WAAS navigation. With that decision, FAA avoided significant future development costs and lifecycle maintenance costs. With WAAS operational, we are now reassessing the full spectrum of navigation services needed to meet the needs of all users. As a result of this review, new baseline cost, schedule and performance goals will need to be established to more accurately reflect the program's current status. The APB will be established in December 2004. Furthermore, this process of providing capabilities, assessing how users respond to those capabilities, and revalidating current and future user requirements must be an iterative process.

Our perseverance with WAAS has paid off in international leadership in satellite-based aviation navigation. Many countries are working with ICAO to standardize satellite augmentation systems globally. However, currently, the U.S. is the only country that has developed and implemented this emerging technology and we are discussing agreements to share and potentially implement WAAS technology in other countries.

#### Standard Terminal Automation Replacement System (STARS)

Turning now to STARS – the system that will replace FAA terminal systems that, in some cases, are nearly 30 years old, by combining data from multiple radar systems to create an enhanced

view of aircraft and weather in the terminal area and displaying it on a full color display that is easy to read. As my predecessor discussed with this committee many times in the past, STARS has seen some significant successes in development and support from our controller workforce along with significant setbacks in its deployment. Although challenges still lie ahead for STARS, since the establishment of the Terminal Business Service over two years ago, which brought together the operational, acquisition and engineering expertise necessary to modernize the terminal environment, STARS has met all of the cost and schedule milestones that have been agreed upon for the program.

To date, STARS Early Display Capability, which provides a new STARS display using Automated Radar Terminal System (ARTS) computers and software has been deployed at 11 sites and the first fully operational STARS was commissioned in Philadelphia in July. Deployment is scheduled to continue at a rate of approximately 20 sites per year through 2011 for a total of 167 deployments. Those sites that present the most critical risk to service will determine site placement in the STARS waterfall.

I think that it is fair to say that we are all striving for the same goal of cost-effective terminal modernization but STARS is at a crossroads. The cost associated with deploying STARS has proven to be another difficult stage of this program. We have seen a substantial increase in cost and suffered significant delays. As a result, the Department of Transportation's Inspector General has suggested that we consider a terminal system comprised of a combination of STARS and Common ARTS, our current installed base.

Based on the technical merits, full STARS deployment remains our preferred option because it provides better service and will also significantly reduce maintenance costs in the long-run. However, we do not yet know if it is the most cost-effective option. The Joint Resources

Council will meet in November to decide whether we will proceed with full STARS deployment or another alternative, based on an independent cost analysis.

### Conclusion

We constantly face technological and management challenges in our modernization pursuits. As I mentioned earlier, we are building on what we have learned about what has and has not worked – in the scientific arena as well as for contract management. I think the *Federal Aviation Administration Flight Plan* says it best, “We not only set the regulatory and operational standards for the United States, we effectively set the bar for aviation safety around the world – and have for almost a half-century.” We will continue to set this bar with the advances that we have already made and the ones we will achieve in the coming years.

As I conclude, I must note that the responsibility for modernization, like that of air traffic, is about to undergo a change. This past summer, Secretary Mineta and Administrator Blakey brought Russ Chew on board as FAA’s new Chief Operating Officer (COO). He is heading up the Air Traffic Organization, the linchpin in our future modernization efforts, which will include not only Air Traffic but also the Research and Acquisitions organization and Free Flight, integrating the modernization mission critical organizations within FAA. Bringing all of the critical components together in the same organization will allow everyone to focus on the same goal: improving service for FAA’s customers.

It has been a pleasure to work with Russ since he joined us in August and I look forward to being part of his modernization team. While, as I have acknowledged, there are challenges that Russ is inheriting, I believe that the platform we are providing him in terms of modernization is a solid one. He has said that he wants to continue to set the stage for modernization – not follow it. As our new COO molds his plan for the future of our nation’s air traffic control system - the more

than 3,400 airports, 750 air traffic control facilities and approximately 45,000 pieces of equipment that operate around the clock -- the tools will be in place for his success.

I would be happy to answer any questions you may have.